# Measuring Information Transparency in the Water Sector: What Story Do Indicators Tell?

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Indicators and benchmarking initiatives are considered to be powerful instruments for identifying and communicating the need for change and for gauging performance of policy responses. During the past few decades, water-related indicators have increasingly broadened their scope from merely measuring bio-physical parameters to assessing different aspects of water governance. Designing meaningful governance indicators, however, has proven to be a challenging task. In this paper we start from an index of information transparency (calculated for Brazil, Portugal and Spain) to explore how such an index can contribute to a better understanding of the functioning of the water sector in a given country. We argue that, despite all its limitations, a transparency index can be a useful entry point for a diagnosis of gaps and strengths of the water sector, provided that its interpretation is rooted in the country's institutional context. Such a diagnosis can reveal that the lack of transparency is partially due to the fact that water institutions are still building their capacity to reach out to the society or that competences on water issues are distributed among a very broad array of actors. Our analysis confirms that the results of governance indices are a double-edged sword, as they do trigger and feed public debate about institutional reform, but they can also become an excuse for implementing superficial changes that merely meet formal requirements.

**Keywords:** Index, Indicator, Transparency, Water Governance, Participation, Accountability, Information

## 1. Introduction

With the rise of the concept of water governance since the late 1990s, there have been many attempts to measure the quality of public and private governance practices in the water sector. Typically, benchmarking approaches have been based on the presence and quality of key attributes or principles of "good governance". International organizations have driven the selection of those attributes, which include qualities such as equity, rule of law, responsiveness or information transparency (see UNDP, 1997; GWP, 2003; WWAP, 2003; OECD, 2015a).

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The debate about the role of information transparency was introduced in the water sector by international organizations such as the World Bank and Transparency International, asserting that the access to information is a key element to improve water supply in different parts of the world (Asis et al., 2009; Transparency International, 2008). Enabling constructive social action, decentralization, and transparency, information disclosure became a *sine qua non* condition to ensure access to water resources (Asthana, 2008; Mitchell, 2012). This becomes even more relevant in a context where expanding digital resources and digital literacy create renewed awareness, attitude and ability of citizens to intervene.

Many of the attempts to assess water governance have opted for using indicators and indices (for an overview see OECD, 2015b), as they have the advantage of enabling comparison over time and/or among peers, and are powerful communication instruments. Indicators are considered to be useful tools to create a baseline, measure performance, identify deficiencies, guide reform and capacity building, and assess the effectiveness of intervention (Lockwood et al., 2011; Lehtonen et al., 2016). Indicators, however, can only be the starting point for further discussion and analysis.

In the case of information transparency, the interpretation of any benchmarking exercise triggers a broad array of questions. These include understanding whether pitfalls in access to information are due to lack of adequate legal provisions or rather to a problem of capacity; whether they consist in lack of information or rather in lack of *relevant* information; whether the availability of more information online really brings about more democracy; and what information gaps tell us about the water sector in a given country. In this context, this paper focuses on Brazil, Portugal and Spain to a) explore the challenge of measuring information transparency through an indicator-based approach; and b) use the results of the assessment to shed light on strengths and weaknesses of water institutions and water governance in those countries.

## 2. The Challenge of Measuring Transparency

The importance of access to information was already present in the concerns of the world leaders during the elaboration of the Rio Declaration in 1992, which appointed the states as responsible for fostering public awareness and participation by making information about environmental issues publicly available (United Nations, 1992). Today, the level of information access is translated into transparency, presented as an indicator of the integrity and legitimacy of governance practices and as a means for reducing information asymmetry and therefore power asymmetry in decision-making processes (Stalgren, 2006).

The introduction of transparency as an indicator of good governance reflects the actual political and environmental context (Bouleau et al., 2009; Turnhout et al., 2014). It is a central principle of the European Union Aarhus Convention, which states that free access to information and the society's capacity to use it are crucial conditions for environmental sustainability (UNECE, 1998). Such understanding reflects the neoliberal approach, in which access to information is a cornerstone of democracy, enabling citizens to see what goes on in government (Hetherington, 2011); to fight against corruption (Gupta, 2010;

Lavalle & Vera, 2011); to share power in decision-making processes that take into account different interests and political positions (Agnew, 2011); and to empower marginal social actors. In this view, informed citizens and entrepreneurs are able to rationally choose and influence political and market options, thus making governments and corporations more accountable and efficient (Hetherington, 2011; Petkova et al., 2002).

With the rise of transparency in the policy agenda, several scholars have started questioning whether more transparency actually means more democracy and better governance. Gupta (2008) notices that disclosure of information can easily be manipulated by providing biased information or drowning the public with irrelevant or unclear information. Hence, the existence of available information is not enough to guarantee informed participatory decision-making processes. For instance, it is crucial to consider the format in which the information is available, its language, how up to date it is and in which moment it becomes available (Mol, 2010). Moreover, information disclosure must be accompanied by a guarantee about the quality and reliability of the information provided; the opportunity of participating in the processes of decision making; and access to justice when the right to information or participation is not granted (De Stefano et al., 2012). The acknowledgment of all these caveats should not lead to dismiss the importance of information disclosure. In this paper we start from the assumption that information transparency is a necessary but not sufficient condition for accountability and participation. For this reason, we analyse the level of disclosure of information in the broader institutional context and argue that reaching a minimum level of information is a first but necessary step to start the debate about the quality of disclosed data, and about its contribution to improve water governance.

The use of indicators to trigger change and measure the effectiveness of reforms in water and environmental governance has evolved rapidly. Until recently, water- related indicators focused mainly on evaluating biochemical and physical aspects of the natural resources, assuming that technical approaches were the main ones influencing water availability (Fernández, 2014). At present, increased attention is being paid to governance indicators, as proved by the OECD Water Governance Initiative, which inventoried 60 initiatives that measure different aspects of water governance (OECD, 2015b) and is working toward the definition of a set of OECD water governance indicators.

Interestingly, indices to measure information transparency are still limited and generally focus on the disclosure of fiscal/economic data (for a literature review on the topic see Williams, 2015). In the specific case of the water sector, the OECD inventory of governance indicators (OECD, 2015b) include very few initiatives that attempt to actually measure information transparency. Moreover the existing benchmarking initiatives are mainly focused on domestic supply and the private sector, as way of increasing the accountability and quality of service of water utilities, and very rarely on how water resources are managed (Alegre et al., 2013)

Undoubtedly, measuring political practices through numbers entails risks and important limitations. 'Objective' indicators usually help to assess details but are not able to identify the relevance and meaning of data in a broader context (Veenhoven, 2002). At the same time, the variables that compose indicators respond to political agendas. The use of numbers

to measure nature and how it is managed creates an opportunity for controlling the access to such resources and to implement water markets as proposed by neoliberal water governance perspectives (Verran, 2010). Moreover, an increasing body of literature questions that indicators achieve their intended use. Lehtonen et al. (2016) remark that "indicators can be 'misused', but even when used 'correctly', they frequently produce undesirable outcomes: they can empower the already powerful, reinforce rather than challenge dominant framings, push for premature consensus on the lowest common denominator" (p. 8).

In this paper we acknowledge these limitations and risks, and explore what an information transparency index can contribute the debate about water institutions and water governance in a given country. When using water governance indicators, it is important to recognize that numbers are telling just a small portion of the story. Context and expert knowledge should complement those numbers to generate a more complete understanding of governance practices. In the next sections we will explore how, in the context of water governance, the results of an indicator-based assessment of information transparency can tell an interesting story when interpreted in a broader context.

## 3. Methodological Approach

This paper draws from different sources of information and data. First, from the existing literature about arrangements to promote public participation and information transparency in the three countries. Second, from outcomes of an assessment of the information available online in the three countries, based on a transparency index originally developed in Spain (INTRAG, in its Spanish acronym) and adapted to the Brazilian and Portuguese contexts for this study. And third, the paper draws from the authors' own experience either as academics or as active members of civil society organizations. They contribute to the research through their own experience following a participatory methodology that involves agents - in this case the authors of this paper - as research partners in the production of knowledge (Cornwall & Jewkes, 1995; Bergold & Thomas, 2012).

INTRAG was developed by the NGO Transparency International-Spain in collaboration with Spanish water experts to assess the levels of transparency of Spain's Water Agencies (i.e. river basin authorities for rivers crossing several regions, and regional water authorities for river belonging to only one region). INTRAG was conceived as an adaptation to the water sector of an index of information transparency originally designed to assess transparency of Spanish municipal governments. Its creation was motivated by the perception (by the Index designers) that the lack of reliable data on water uses contributed to misconceptions around water uses and mismanagement of water resources. Thus, its intended purpose was to identify gaps in information transparency as a way of triggering change in existing practices of proactive information disclosure.

The Index assesses to what extent water agencies make relevant information available on their website and is grounded in the awareness that the internet is a powerful tool for communication. INTRAG aggregates 80 indicators comprising six areas: *Information about the Water Agency (WA) (6 indicators); Relationships with stakeholders and the public (14);*

*Transparency in the planning process (16); Transparency on water use and management (22); Economic and financial transparency (8);* and *Transparency in contracts and tenders (14).* The Index evaluates the presence or absence of relevant information; however, it does not assess its quality or easiness of access. Thus, the possible score for each indicator is 1 (information present) or 0 (absent). The steps followed for the calculation of INTRAG are summarized in Figure 1.

In Spain, INTRAG so far has been calculated in 2010, 2011 and 2013[1]. Before each rerun indicators were revised in order to address comments and suggestions from the assessed water agencies and to adapt to new legal requirements and development. Changes never affected more than 20% of the indicators. In Brazil and Portugal, the format of INTRAG was adapted considering each country's characteristics. In Brazil, the

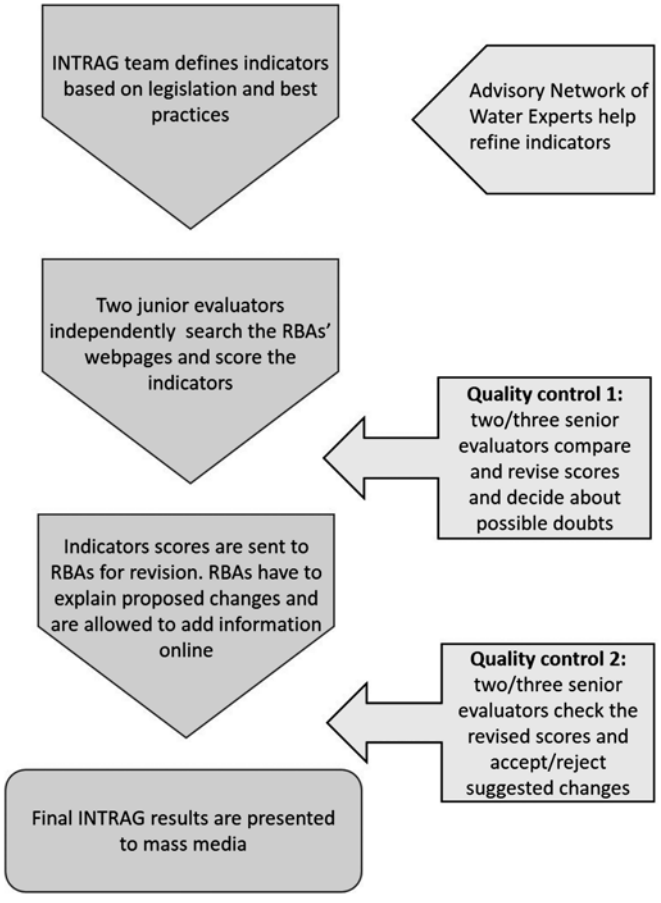


Figure 1. Process to define and apply INTRAG.

[1] INTRAG was conducted in Spain also in 2015, after the submission of this paper. The results of INTRAG 2015 can be found at http://transparencia.org.es/en/intrag-2015/.

assessment was undertaken in 2013 by a group of experts belonging to the academia and with connections with civil society movements[2]. The Brazilian team adapted the survey to the requirements of the Brazilian Water Law and the Access to Information Law. The study considered the 26 water state agencies and the federal district as units of analysis and included 65 questions. In Portugal, a team of academics and civil society experts applied INTRAG in 2014. The Index maintained the structure of its Spanish version (80 indicators grouped in 6 areas) while its content was slightly adapted to the Portuguese water context. Moreover, the Portuguese team opted to use a fuzzy scale instead of a Boolean one[3]. Moreover, the present Portuguese institutional setting (resulting from a merging of regional water authorities into a single national body for Portuguese mainland in 2011) precluded a comparative analysis between the Portuguese five continental river basin districts. Hence, the assessment could only consider the Portuguese mainland, managed by the APA (Portuguese acronym for Portuguese Environment Agency), and two autonomous Atlantic regions (Madeira and Azores) managed by their respective Regional Environment Secretariats.

## 4. Assessing transparency in water institutions

### *4.1. Analysis of institutional arrangements for stakeholder participation and information transparency*

The Brazilian and Spanish systems hold river basins as the unit of water management and an important part of stakeholder participation occurs at river basin or at regional scale. Besides these local levels, in the three countries participation takes place also at higher levels, through the National Water Council and, in the case of Brazil, through the State Water Councils.

In Brazil, the 1997 Water Resource Law increased participation of stakeholders in decision-making processes, and created the Water Basin Committees. In that context, stakeholders collaborate in the elaboration of water management plans and can also influence decisions. Indeed, in those committees the number of seats for users and civil society organizations combined outnumber those of the State, thus granting them decisional power if their interests converge on a specific issue (Empinotti et al., 2014).

The membership of Portugal and Spain in the European Union (EU) has a clear influence on their participatory provisions, supporting public participation in the management of the environment. In addition to several European regulations to ensure a participatory approach to environmental governance (Ballester & La Calle, 2015), the 2000 EU WFD establishes legal provisions for participation in water resources planning. The Directive states that its

[2] INTRAG in Brazil was conducted also in 2015, the full report can be found at http://artigo19.org/blog/2016/04/28/transparencia-na-gestao-dos-recursos-hiaricos-no-brasil/

[3] Where 0 corresponds to no information found; 0.25: little information found, 0.50: some information found; 0.75: a good amount of information found; and finally 1.0: comprehensive information found.

success "relies on close cooperation and coherent action of Community Member State and local level as well as on information, consultation and involvement of the public, including users" (WFD, 2000: 2) and defines consultation procedures in the process of approval of the River Basin Management Plans.

In Spain, water users – mainly farmers and energy industry - have traditionally played an active role in the decisions related to the distribution of water and the management of water infrastructure, especially at a river basin level, where they have a seat in several participatory boards. Other stakeholders beyond water right holders (e.g. civil society organizations, recreational users) have very limited influence on decisions at all decision-making levels (Varela-Ortega & Hernandez-Mora, 2010).

In the Portuguese case, participation beyond the elaboration of River Basin Management Plans is limited to two venues: the National Water Council, an advisory body chaired by the Ministry of Environment that provides recommendations to water policies and advises government decisions; and Regional Water Councils that advise on water management plans, promote and monitor the production and dissemination of regional information, and participate in water-related programs. Between 2012 and 2015 those Councils were inactive, and were reactivated only recently, to provide advice on the River Basin Management Plans published at the end of 2015. In any case, stakeholders represented in the Regional Water Councils have little real power of decision.

In parallel to the development of participatory arrangements, the right of access to information has been progressively supported by specific legal provisions. In Brazil disclosure of environmental information is sought through the 1997 Water Law, which created an Information System for organizing and making information available to support decision-making processes; and the Access to Environmental Information Law (2003), which established that the public agencies belonging to the National Environmental System have to ensure public access to documents and procedures dealing with environmental matters. In Portugal and Spain environmental participatory governance stems from the EU legislation and the ratification of the Aarhus Convention[4] of the United Nations Economic Commission for Europe, whose legal requirements are included in the national legislation of the two countries.

At the same time, the right to access information has become institutionalized through the creation of a transparency law in the case of Brazil (passed in 2012) and Spain (2013). These legal instruments apply to bodies and organizations that are public or receive public funds. Their goal is to have information about financial expenses publicly disclosed as well as to create channels of communication between the government and citizens to ensure access to information.

This section suggests that institutional arrangements in place in Brazil, Portugal and Spain support not only participation but also access to information on water management.

[4] Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters.

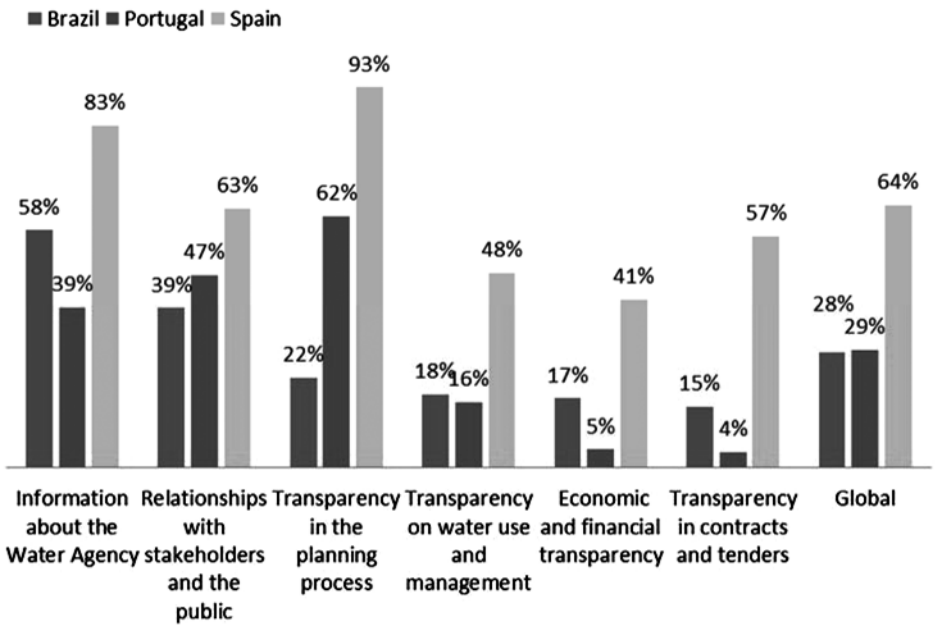


Figure 2. Country results by thematic area. Based on TI Spain (2013) and own results.

However it is necessary to assess to what extent the existing institutional arrangements are producing information transparency in practice and what the level of transparency tells us about strengths and weaknesses of the water sector

The overall results of INTRAG show an average score of 64% for Spain, 29% for Portugal and 28% for Brazil[5] (Figure 2). This suggests that in the three countries, despite the existing institutional arrangements, the level of information transparency in the water sector in practice is far from sufficient.

The comparison of results by thematic area shows that there are similar trends across the three countries. *Information about the Water Agency* and *Relationships with stakeholders and the public* exhibit high transparency. The first includes information about, for example, the structure and responsibilities of the WA, or the composition of its governing bodies, while the second area considers the availability of, e.g., information about claims, participatory meetings, and replies to consultation processes. Since these are the least controversial aspects of the assessment and since in the three countries public participation is legally regulated, a higher performance relative to other areas was expected.

*Transparency in the planning process* received quite high scores in Spain (93%) and Portugal (62%), which can be explained by the WFD legal requirements to elaborate the River District Management Plans in consultation with the public. In the three countries,

[5] Results are expressed as a percentage of the maximum possible score (i.e. 100% corresponds to having all the required information online).

*Transparency on water uses and management*, *Economic and financial transparency* and *Transparency in contracts and tenders* are the areas that received the lowest scores. The first one includes information about, for example, water right registers, mechanisms of water allocations, or the implementation of existing legislation. Information deficiencies in this area question the transparency of the whole water sector, as they mean that citizens and interested parties have no access to comprehensive information about how water—a public good—is used. The other two areas are equally sensitive, as they refer to the financial and economic side of water management, and lack of transparency in these areas opens the way to misuse of public funds or even corrupt practices. Beyond the results by thematic areas, it is interesting to identify issues where there are clear information gaps in each country.

In Brazil *Information about the WA* and *Relationships with stakeholders and the public* receive relatively high scores, as councils and committees are in place and providing information about their activities. Gaps in other areas, such as the inexistence of management plans and water pricing, however, point to the fact that those water institutions are still only partially working or have a limited scope on important water- related matters. Such reality reflects in low scores in the *Transparency in the Planning Process* area. Thus, rather than lack of transparency, the unavailability of information mainly indicates that many governance instruments such as water resources plans, water licenses or water flows data, still do not exist. Low scores in *Economic and Financial Transparency*, and in *Transparency in contracts and tenders*, can be attributed to the fact that water institutions have little influence on economic and financial issues and on investments in water infrastructure, which are controlled mainly by the energy and water sanitation sectors.

In Portugal the main gaps relate to *Economic and financial transparency*, and *Transparency in contracts and tenders.* Gaps are generalized, but most evident on incomes and expenditure, in accounting and budgetary information, and in monitoring of public spending. This area has been subject to intense debate, particularly with regard to public-private partnerships, where the Portuguese Court of Auditors found irregularities and excessive profits in some business activity related to water supply in Portuguese municipalities (Tribunal de Contas, 2014). In the area of *Management of water resources and water use* lack of transparency also stems from recent (2011) political reforms that resulted in substantial cuts and changes in water governance that led to the discontinuance of data series, including the suspension of the National Inventory of Water Supply and Wastewater Systems. The other three areas show a better performance, but still quite low scores. This is partly because the non-inclusive and centralist tradition of water authorities remains, and partly because water reforms have caused regress in the performance of institutions.

In Spain, in the area of *Relations between the public and stakeholders* the WAs rarely inform citizens about the procedure to follow when they are not granted access to information they requested, which is a key component of the legal right to information access. In relation to *Transparency on water use and management* there is a substantial information deficiency about water rights and water abstraction statistics (e.g. annual abstracted volumes; updated information on existing and new water use permits); compliance with existing regulations on water quality; and feasibility reports and cost recovery estimates

for new hydraulic infrastructure declared of Public Interest. In the area of *Economic and financial transparency* little information can be found about the level of cost recovery in new public works, amount and final use of water tariffs and dues, and budget execution by the WA. In *Transparency in contracts and tenders,* very few WAs provide aggregated information about their main contractors and public contracts. Moreover, modifications of granted contracts or their actual costs at the end of the contract execution are rarely published. This information is particularly useful especially because between 2004 and 2012 the modification of granted contracts was normal practice, and, on average, the cost of the contracts was 29% higher than originally budgeted (Mendez, 2012).

Figures 3, 4 and 5 present the breakdown of the results by assessed region in the three countries. While in Brazil and Spain the management unit is the river basin, and information is organized accordingly, in Portugal the recent recentralization of the water sector allowed the research team to distinguish only the two autonomous Atlantic regions (Madeira and Azores) and the Mainland merged data. Thus, the results for Portugal presented in Figure 3 cannot be used to explore regional differences except for the fact that the two Atlantic regions in general fare worse than the Portuguese mainland.

The lower scores of Madeira and the Azores are, at least in part, due to their insular condition and the associated difficulties to keep the pace of institutional development of the mainland. In both cases, low literacy rates (Pordata, 2014) also explain a lower capacity of citizens to intervene. Thus, Portugal's results reflect a widespread disinvestment in the

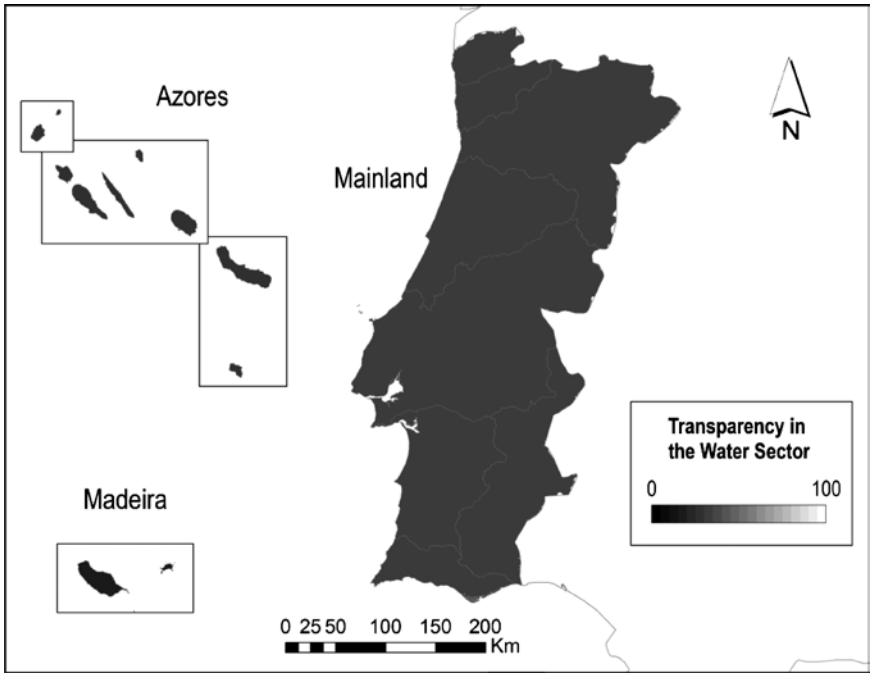


Figure 3. Overall results of the assessment undertaken in Portugal in 2014.

water sector and, in particular, in the dissemination of water-related information. With the extinction of the regional water agencies on the Portuguese mainland in 2011, the quantity and quality of information were further reduced, impacting transparency and the relationship with the public (Schmidt et al., 2015).

In Spain and Brazil, one could try to explain spatial differences based on a number of issues, including the level of income of the region, its level of urbanization or its level of water scarcity and the associated conflict, or the age of the assessed water agency. When observing the maps in Figure 4 and 5, however, these factors do not seem to explain spatial trends in a conclusive way.

In Brazil, it was expected that state agencies with a longer history such as in São Paulo (SP), Rio Grande do Sul (RS), and Cearã (CE) would obtain scores higher than recently-created ones, as they may have had time to build their capacity in relation to information transparency. Nevertheless, the results did not corroborate this hypothesis, as for instance Rio Grande do Sul, which was forerunner in the approval of a state water law, lagged behind in the full development of its water system and this is reflected in its low information transparency.

The results of the assessment in Brazil seem to reflect how important the water agenda is for each state. For example, in the Amazon region, in the northern part of Brazil, the environmental agenda is mainly concerned with deforestation and not with water availability.

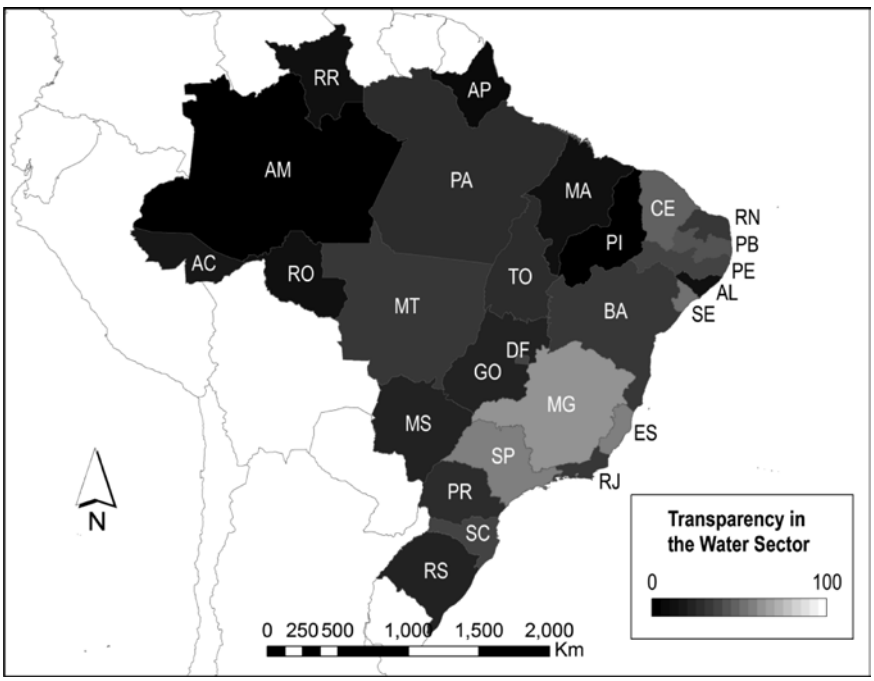


Figure 4. Overall results of the assessment undertaken in Brazil in 2013.

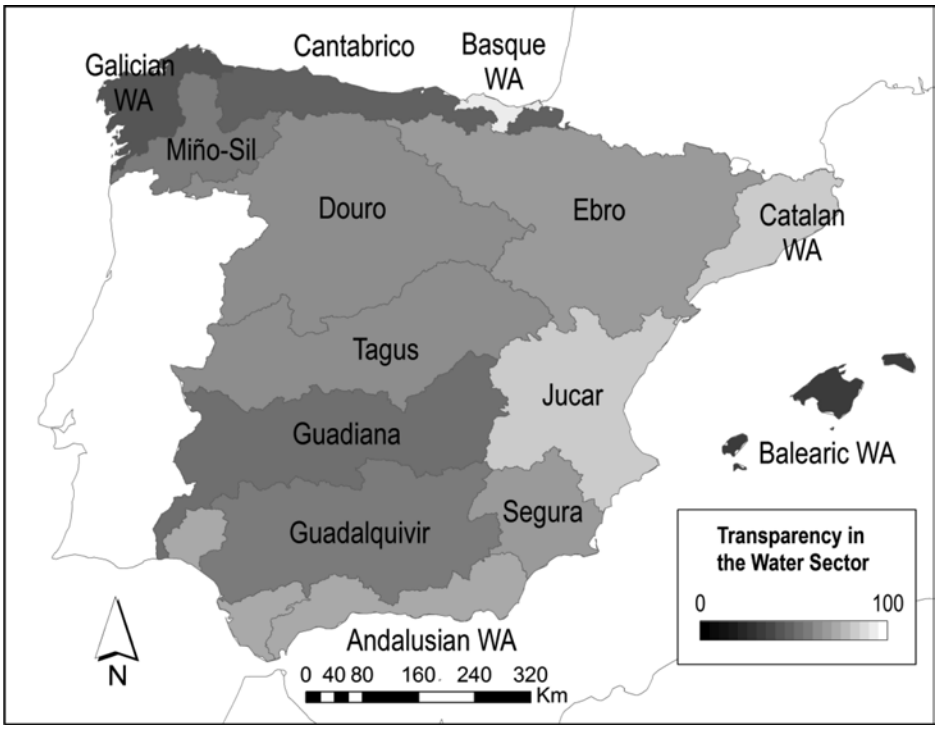


Figure 5. Overall results of the assessment undertaken in Spain in 2013.

This low priority is consistent with the low transparency scores found in the region. On the other hand, water access and availability play an important role in the Brazilian Northeast states' agenda, due to their semi-arid climate and their context of water scarcity. As the result, five north-eastern states (Sergipe - SE, Paraiba - PB, Cearã - CE, Pernanbuco – PE, and Bahia - BA), have high transparency scores. Finally, since the 1960s the south-eastern states have experienced significant pressure on water resources, in terms of quantity and quality, due to high concentration of population in the area (São Paulo and Rio de Janeiro), intense industrial activity and deficient wastewater treatment. Thus, civil society organizations vigorously demand governmental response to address those problems, which reflects in higher levels of transparency.

As in Brazil, the age or the administrative situation of the Spanish WAs does not seem to be a conclusive argument to explain the level of performance in the assessment. For instance, the WAs of Miño-Sil and Cantabrico, who obtain relatively low scores, were recently established or restructured, but so was the Andalusian Water Agency, which obtained high scores. There is a tendency for regions with higher water stress, on the Mediterranean coast, to have a higher level of transparency, but, again, the Bask Water Agency is the exception that confirms the rule, being located in the wettest part of Spain and showing very high

levels of transparency. The correlation between high water stress and high transparency levels could sound counterintuitive - the higher the level of conflict the lower could be the willingness to share information - but actually can be explained with the fact that civil society in water-stressed areas is more active and demanding of information, thus forcing the Public Administration to be more transparent. Moreover, since in those regions water is high in the political agenda, the Public Administration can be more interested in showing its commitment to address water-related issues to its constituency. As a matter of fact, it is interesting to analyse Figure 5 in light of the social movements in the different river basin districts. Historically the Mediterranean regions have a significant tradition - relatively to other regions of Spain - in terms of user organization and water-related citizen movements, as expressed by social mobilization in favour and against a highly disputed water transfer from the Ebro to the southern part of the Mediterranean coast (Arrojo et al. 2010, p. 251; Font & Subirats, 2010) and the presence of several very active water-related citizen platforms in the area.

## 5. Discussion

### *5.1 What does the Transparency Index say about transparency in the water sector?*

The previous sections show that Brazil, Portugal and Spain align with international trends boosting participation and transparency in water management, and have a battery of legal provisions to enable them. They also share the questioning of deliberative democracy, as expressed in demonstrations against the political establishment, triggered by economic recession in Portugal and Spain and, in many other countries worldwide, by the loss of trust in the public authorities and the political system. This general disenchantment can be felt also among water stakeholders, where the literature reveals that the reach of participatory processes falls short of the expectations raised by recent water reforms (Wesselink et al., 2011). In this context, the interpretation of the INTRAG results from a broader perspective sheds light on achievements and future challenges related to information transparency.

The low scores in the three countries contrast with the large amount of legislation regulating the access to information. Thus, low performance in INTRAG should be explained by reasons other than the lack of a well-developed regulatory framework. Some of them are related to the actual capacity of actors to share information. For instance, the authorities in some cases do not share information about a specific issue simply because they do not have it. Their monitoring systems can be insufficient or the reporting chain be understaffed, thus blocking or delaying the production of information. Moreover, the public administration in the three countries is still poorly prepared to share information and power over decisions with the civil society. Finally, the civil society itself still has a limited tradition in demanding a more active role in decision making and compelling the government to be more participative (Schmidt & Guerra, 2010).

Other reasons are related with the maturity of water institutions and their alignment with the requirements of our Index. Thus, while INTRAG is not designed or suitable for cross-country comparison[6], it is interesting to delve in the reasons why Spain obtained an overall average score that doubles those of Brazil and Portugal. First, Spain's results were obtained in the third run of INTRAG (2013), which means that the WAs had had time to improve the relatively poor scores received in 2010 and 2011, when the overall score was 51% and 60%, respectively. Second, Spain has a long tradition in management of water resources by river basin, which is the unit of analysis of the Index.

Thus, the agencies hosting the data have well-established web pages and reporting mechanisms. On the contrary, water institutions in Brazil and Portugal are relatively young and still in process of consolidation. In Brazil water-related data can be found at the site of National Water Agency (ANA) and most states have sites where information about water resources presents an uneven picture. In Portugal, after a short and fruitful experience of decentralization, in 2011the system became again centralized, and in that process a large amount of data and information previously available in the web pages of the single River Basin Districts was largely taken offline.

An important consideration relates to how higher information disclosure brings improved transparency and participation. Several studies have shown that stakeholders in the three countries feel frustration about the participatory processes, as they believe that critical decisions are still made behind closed doors by members of the traditional water policy community (Schmidt et al., 2006, Jacobi, 2004; Guerra, 2011; Empinotti, 2011; FNCA 2014; Hernández-Mora et al., 2015). Not even the rapid expansion of Information Communication Tools (ICTs) seems to have changed these power balances so far. After studying the role of ITCs in empowering citizen water networks, Hernandez-Mora et al. (2015) concluded that "without a real willingness to open up true spaces of deliberation where all actors can participate in conditions of equality, the role of ICTs will remain one of strengthening citizen water networks' organizational capabilities and ability to obtain and generate information, but will not alter the basic framework for water policy making" (p. 120). Thus, more information online is no guarantee of real progress toward improved participatory practices. Moreover, there must be mechanisms through which citizens can claim their right to know if they are denied access to information. To make this possible it is also essential that the information takes into account the high degree of illiteracy that remains in some social segments, mainly in the most vulnerable social groups, in a time when the dynamics of privatization can threaten some successes already achieved in information availability.

[6] As noted by Bellver and Kaufmann (2005) "rather than establishing cross-country comparisons or rankings, the main objective of [ …] transparency index is to contribute to the debate and offer a set of indicators so each country can monitor progress over time. Only country-specific diagnostics can provide enough detailed institutional information to form the basis for a strategy to improve transparency and accountability in the public sector"

### *5.2 What does the Transparency Index say about the functioning of the water sector?*

To address this question it is interesting to explore what were the main information gaps in each country. As it was said earlier, in the three countries the areas which received the lowest scores are *Transparency on water uses and management, Economic and financial transparency* and *Transparency in contracts and tenders*.

In the Brazilian context, the low performance in information on financing and contracts can be explained by the fact that the duties of water institutions are limited to management of water infrastructure rather than its construction. The institutional reforms that took place in Brazil since the late 1990s maintained decisions over investments and financial resources in the hands of sectors such as energy, infrastructure and water supply services. The lack of information available on the water agencies' web pages indicates that, even if the water system is shifting toward a participatory model, the states still maintain control of the information related to decision-making processes. This reveals the fragility of current water institutions and their limited capacity to influence decisions over water infrastructure and investments made mainly by public enterprises.

In Portugal the poor performance in those areas is due to: *i*) the persistence in public institutions of a *modus operandi* that does not easily share information with the public; *ii*) the relatively new tradition of information transparency and the consequent lack of integration in institutional governance routines, where priority has been anticorruption rather than broader issues of transparency (Sousa, 2010); *iii*) the absence of key information in water management and monitoring sites, and its dispersion across different institutions not linked to water governance; and *iv*) the political change that took place in 2011, discontinuing the previous administrative setup, and creating additional difficulties in collecting and sharing reliable data, which, in turn, increases the mistrust between people and political and economic institutions.

In Spain, low performance in the three areas can be explained by several reasons. For instance, the complexity of the distribution of competences among different levels of the Public Administration, which fall on several branches of the central government, the regions and municipalities, makes that data and monitoring activities are dispersed and not always harmonized. Moreover, data about actual water abstraction is often still estimated and not directly metered, especially in groundwater use (De Stefano et al., 2013). In the area of *Transparency in contracts and tenders,* part of the contracts and tenders falls outside the responsibility of the assessed water agencies. Indeed the construction of water infrastructure is not always responsibility of those agencies, which, for this reason, do not necessarily feel obliged to publish data about the development of construction contracts. Moreover, tradition of transparency in this field is still limited, as shown by the fact that, where information is available, it is rarely provided in a way that is easily understandable by laypeople.

In the three countries, water-related matters span over a wide spectrum of disciplines and competences, and decisions about infrastructure and allocation of financial resources are made outside the sphere of the water administration. This is relevant to understand

where the actual powers steering the water sector reside and, at the same time, results in increased opacity of decisions and processes.

### *5.3 What does the Transparency Index say about governance indicators?*

The contrast between well-developed legal frameworks and the poor INTRAG scores showcases the importance of moving beyond input-based assessments[7]. Indeed, if Spain, Portugal and Brazil were to be assessed considering only their regulatory framework, they would fare quite well, while the output-based assessment of INTRAG casts a quite different picture. Moreover, the complexity of socioeconomic and historical development behind performance in the assessment underscores the need to use INTRAG for comparison of water agencies within the same country rather than across countries.

When interpreting the INTRAG results in connection with other studies that analyse in a qualitative way the level of participation and accountability, we realize that there is a divide between outputs, measured by INTRAG, and outcomes, i.e. actual transparency. Moreover, assessing information transparency means focusing on processes rather than on the final outcomes of those processes (e.g. improved water quality) and on the long run can contribute to create or consolidate undesired practices. As Gupta (2008, p.4) remarks "…processes, once agreed, are subverted by those with the power to deny their original intent. One way to do so is to provide too much—rather than too little—of a good thing. In the realm of transparency, this could take the form of drowning in disclosure, if recipients bombarded with large volumes of disclosed information do not know how to find the "needle in the hay-stack" or even what to look for".

Due to the longer trajectory of INTRAG, the case of Spain allows for some considerations about the intended and unintended consequences of the Index. With very few exceptions, the assessed WAs accepted to engage in the revision of the preliminary results of Index[8]. Several of them asked for clarification about some of the indicators, added new information online and even proposed new indicators to be included in future runs of the Index. One agency used the INTRAG thematic areas and indicators to create a specific session on transparency in its website and some of the agencies that obtained high scores publicly listed their good performance among their institutional achievements. Thus, INTRAG managed to achieve credibility among its main target audience and to create incentives for the agencies to upload relevant information online. Moreover, consulted mid- to high ranked officials in some of the WAs acknowledged that they had used INTRAG to

[7] Input indicators measure the presence of enabling conditions to produce a given output and outcome; output indicators consider whether laws or policies are being implemented; and outcomes indicators measure the actual effect of a policy action on the ground. The first two, in turn, are "process-based indicators", as they assess the process rather than the final outcome and are based on the assumption that if the process follows some pre-defined procedures or principles, the desired outcomes will be achieved.

[8] As explained earlier, in INTRAG the assessed WAs are invited to revise their preliminary results, prepared by the INTRAG team. This gives the WAs an opportunity to point the evaluators to pages that were not found during the assessment or even to add information online to improve their final score.

advocate internally – before their superiors or their peers - the improvement of information disclosure practices.

The Spanish experience evidences an important feature of governance indicators: they can and actually often intend to modify the reality that they measure (Lehtonen et al., 2016). This is particularly true in the case of INTRAG, where the designers meant to maximize that catalysing capacity of the index by allowing the assessed agencies to improve their performance before the release of the Index results. This is an effective way of increasing the access to relevant information, but also reveals a limitation and potential intended consequence of INTRAG that is common to any process-based indicator: a water agency can climb up the ranking of transparency by simply adding selected information and data to adjust to the Index requirements, without a true institutional transformation toward transparency. In other words, the simplified reality provided by indicators can be improved with rather superficial changes, leaving the heart of institutions unchanged.

In this context, it is interesting to consider what type of change process-based indicators are able to generate. Indeed, "getting the process right" can become "a distraction, diverting time and resources from substantive outcomes that could be the focus of governance instead" (Gupta, 2008, p. 4). Moreover, high performance in a process-based indicator can contribute to the consolidation of behaviours that the indicator wants to change. Indeed, a water agency could use its high scores in INTRAG as an argument for not addressing important gaps in other facets of transparency. And in general, there is the risk that focusing on numbers and rankings helps diverting the debate away from the causes of lack of transparency. Thus, indicators can contribute to reinforce rationales instead of fostering the analysis of the history and the causes of an undesirable practice (Fernandez, 2014).

All this legitimate criticism of process-based indicators leads to ask what should be done instead, as seeing the limitations of each analysis tools should not serve as an excuse for inaction. In this paper we have attempted to demonstrate that, if those limitations are acknowledged and if the Index results are complemented by context information and expert knowledge, an output-based transparency index can offer new insights on strengths and weakness of the assessed institutions and also helps spurring debate about information transparency.

## Concluding remarks

In this paper we have started from a qualitative overview of legal provisions for transparency (which could be seen as an input-based assessment) to setting the scene for INTRAG, which can be classified as an output-based indicator. Analysing the results in light of other qualitative analyses of public participation and of the authors' personal knowledge of the water sector, has led to several considerations about information transparency and its measurement.

It is not possible to establish a clear causal relationship between information transparency and the achievement of management goals. It is however possible to confront the increase in data access and participation opportunities due to legal requirements and technological advances with the perception of stakeholders about their real impact on decisions.

Studies in the three countries suggest that increased participation and information access have societal benefits such as boosting local capacity and awareness of water management challenges. The limited impact of citizens on final decisions, however, also creates frustration and distrust in participatory processes. In other words, advances in participation and transparency are seen as positive but not as 'game changers'.

The case of INTRAG has shown that information transparency indicators can become an instrument for stirring debate and further reflection on the reality, both for researchers and for actors in the water sector. Moreover, they can act as incentives for increasing the amount of information released by the water authorities, which is a first but necessary step to start the debate about the quality and reliability of the collected data.

Indicators of information transparency have clear risks, such as self-complacence of the assessed organizations or when they are used to focus the public attention to a very specific aspect of water governance while diverting the debate from what really matters. To contain these risks it is crucial to make clear that indicators are a means and not a goal by themselves and that their value cannot be oversold. It would be naive to believe that once the water authorities have achieved high scores in INTRAG they can be considered to be fully transparent. We have argued that the problem does not lay in using indicators but rather in overrating the significance of numbers and interpreting them from a narrow perspective. Thus, while it is necessary and legitimate to criticize indicators, their contribution to create debate and trigger change can compensate for their inevitable simplification of the reality.

The interpretation of the INTRAG results from a broader perspective contributes to detect pitfalls in the functioning of water institutions. For instance, informed public participation is hampered by deficient information disclosure, despite the battery of legal instruments to ensure it. In some cases, this is due to lack of political will. In others, the water authorities are not able to share relevant information or engage stakeholders in decision-making processes because some key decisions about water are actually made outside of the water sector. Finally, lack of transparency at times is actually lack of capacity: if the water authorities have not well-established monitoring systems or have no resources to make information and data publicly available, the final result will be opaque institutions.

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